

REMARKS/ARGUMENTS

The Office Action dated March 24, 2003 in the parent case S/N 09/920,758 has been received and duly noted. This Preliminary Amendment is responsive to that previous Office Action, in which the Examiner rejected certain claims in light of the Vogel reference, U.S. Patent 5,562,370. Applicant maintains the invention as claimed is patentably distinct from Vogel. The claims have been amended herein with respect to the claims originally filed in the parent case, to more clearly highlight this distinction.

As a preliminary matter, it is not clear that the Examiner's comparison of features of Vogel and the present invention is entirely accurate. For example, in light of the Vogel specification, it is not clear in the drawings that the feature 56 of Vogel is a "side land surface," nor that feature 22 is a "curved cutting edge."

As best understood, Examiner's main contention supporting rejection is with respect to the spacing of crests and roots from the centerline of rotation. Examiner contends "it is inherent that the *land surface* of each is going to be spaced farther from the center o[f] rotation" (emphasis added by Applicant.) To clarify Applicant's position, it is *not* inherent to Vogel that the *face crests* along the cutting edge be spaced farther from the centerline of rotation than the adjacent *face roots*. To the contrary, Vogel teach "each cutting edge 34 is also arcuate along its width such that each edge 34 conforms with the wall of a sphere S having the same center point C." (Col. 4, lines 27-33). In other words, Vogel teaches a cutting edge 34 that lies entirely within a spherical cutting surface, so that it is inherent the crests and roots are equal distances from the centerline of rotation. This can be seen in Figure 4A. Fig. 4A is a cutaway view with a cutting plane taken through a face root, so that the full height of a serration/waveform is shown from the side. The full cutting edge 34 is curved as shown, so as to lie within the spherical cutting surface S. Although it may not be immediately clear from the Vogel description and figures, the presence of an upper relief surface 44 does not interfere with the spherical nature of cutting edge 34 and does not cause the face roots to be spaced farther from the centerline of rotation. Rather, "the upper relief surface 44 is, in effect, blended between the spherical cutting edge 34 and the lower relief surface 42 . . . while preserving the spherical profile of the edge 34" (col. 4, line 42-49). The likely reason for this spherical nature of cutting edge 34, as explained before, is that the Vogel tool is a finishing tool, apparently designed for minimal material


removal. Thus, Vogel teaches away from the instant invention, wherein the face roots are farther from the centerline of rotation. The claims as now amended more clearly reflect this distinction.

As alluded to in the previous Amendment, the insert of Vogel is positioned on the tool body in a manner substantially different than the end mill recited in Claim 1. A distinction now further reflected in the claims is the orientation of the insert with respect to the tool body. As can be seen in the figures, the curved cutting face surface follows a curved path within a plane substantially parallel to the centerline of rotation and extending between an axially leading tip cutting face surface and an axially trailing side cutting face surface substantially spaced from the centerline of rotation. By contrast, the cutting surface of the Vogel insert as shown necessarily lies in a plane that is angled with respect to the centerline of rotation.

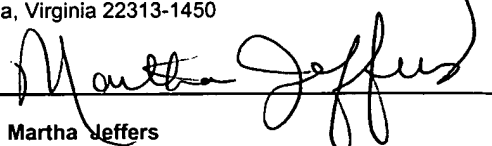
Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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Date: **December 23, 2003**
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